

Lung-RADS® Version 1.1 Assessment Categories Release date: September 2019 (Updated March 2021)

This document has been modified for the Ontario Lung Screening Program

Category	Category Descriptor	Category	Findings	Management	Probability of Malignancy	Estimated Population Prevalence
Incomplete	-	0	prior chest CT examination(s) being located for comparison part or all of lungs cannot be evaluated	Additional lung cancer screening CT images and/or comparison to prior chest CT examinations is needed	n/a	1%
Negative	No nodules and definitely benign nodules	1	no lung nodules nodule(s) with specific calcifications: complete, central, popcorn, concentric rings and fat containing nodules	12 month LDCT	< 1%	90%
Benign Appearance or Behavior	Nodules with a very low likelihood of becoming a clinically active cancer due to size or lack of growth	2	Perifissural nodule(s) (See Footnote 11) < 10 mm (524 mm ³)			
			solid nodule(s): < 6 mm (<113 mm ³) new < 4 mm (<34 mm ³)			
			part solid nodule(s): < 6 mm total diameter (<113 mm ³) on baseline screening			
			non solid nodule(s) (GGN): < 30 mm (<14137 mm ³) OR ≥ 30 mm (≥14137 mm ³) and unchanged or slowly growing category 3 or 4 nodules unchanged for ≥ 3 months			
Probably Benign	Probably benign finding(s) - short term follow up suggested; includes nodules with a low likelihood of becoming a clinically active cancer	3	solid nodule(s): ≥ 6 to < 8 mm (≥ 113 to <268 mm ³) at baseline OR new 4 mm to < 6 mm (34 to <113 mm ³) part solid nodule(s) ≥ 6 mm total diameter (≥ 113 to <268 mm ³) with solid component < 6 mm (< 113mm ³) OR new < 6 mm (<113mm ³) total diameter non solid nodule(s) (GGN) ≥ 30 mm (14137mm ³) on baseline CT or new	6 month LDCT	1-2%	5%
Suspicious	Findings for which additional diagnostic testing is recommended	4A	solid nodule(s): ≥ 8 to < 15 mm (≥268 to <1767 mm ³) at baseline OR growing < 8 mm (<268 mm ³) OR new 6 to < 8 mm (113 to <268 mm ³) part solid nodule(s): ≥ 6 mm (≥113 mm ³) with solid component ≥ 6 mm to < 8 mm (113 to <268 mm ³) OR with a new or growing < 4 mm (<34 mm ³) solid component endobronchial nodule	3 month LDCT	5-15%	2%
Very Suspicious	Findings for which additional diagnostic testing and/or tissue sampling is recommended	4B	solid nodule(s) ≥ 15 mm (≥ 1767 mm ³) OR new or growing, and ≥ 8 mm (≥268 mm ³) part solid nodule(s) with: a solid component ≥ 8 mm (≥269 mm ³) OR a new or growing ≥ 4 mm (≥34 mm ³) solid component	Referral for lung diagnostic assessment For new large nodules that develop on an annual repeat screening CT, a 1 month LDCT may be recommended to address potentially infectious or inflammatory conditions	> 15%	2%
		4X	Category 3 or 4 nodules with additional features or imaging findings that increases the suspicion of malignancy	Referral for lung diagnostic assessment		
Other	Clinically Significant or Potentially Clinically Significant Findings (non-lung cancer)	5	modifier - may add on to category 0-4 coding	As appropriate to the specific finding	n/a	10%

IMPORTANT NOTES FOR USE:

- 1) Negative screen: does not mean that an individual does not have lung cancer
- 2) **Size: To calculate nodule mean diameter, measure both the long and short axis to one decimal point, and report mean nodule diameter to one decimal point**
- 3) Size Thresholds: apply to nodules at first detection, and that grow and reach a higher size category
- 4) Growth: an increase in size of $> 1.5 \text{ mm}$ ($\geq 2 \text{ mm}^3$)
- 5) Exam Category: each exam should be coded 0-4 based on the nodule(s) with the highest degree of suspicion
- 6) Exam Modifiers: S modifiers may be added to the 0-4 category
- 7) Lung Cancer Diagnosis: Once a patient is diagnosed with lung cancer, further management (including additional imaging such as PET/CT) may be performed for purposes of lung cancer staging; this is no longer screening
- 8) Practice audit definitions: a negative screen is defined as categories 1 and 2; a positive screen is defined as categories 3 and 4
- 9) Category 4B Management: this is predicated on the probability of malignancy based on patient evaluation, patient preference and risk of malignancy; radiologists are encouraged to use the McWilliams et al assessment tool when making recommendations
- 10) Category 4X: nodules with additional imaging findings that increase the suspicion of lung cancer, such as spiculation, GGN that doubles in size in 1 year, enlarged lymph nodes etc.
- 11) Solid nodules with smooth margins, an oval, lentiform or triangular shape, and maximum diameter less than 10 mm or 524 mm³ (perifissural nodules) should be classified as category 2
- 12) Category 3 and 4A nodules that are unchanged on interval CT should be coded as category 2, and individuals returned to screening in 12 months
- 13) LDCT: low dose chest CT

*Additional resources available at - <https://www.acr.org/Clinical-Resources/Reporting-and-Data-Systems/Lung-Rads>

*Link to Lung-RADS® calculator - <https://brocku.ca/lung-cancer-screening-and-risk-prediction/risk-calculators/>

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